



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,197	02/25/2004	Yuki Nakajima	023971-0383	3372

22428 7590 04/30/2008
FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

ALI, MOHAMMAD M

ART UNIT	PAPER NUMBER
----------	--------------

3744

MAIL DATE	DELIVERY MODE
-----------	---------------

04/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/785,197	Applicant(s) NAKAJIMA ET AL.	
	Examiner MOHAMMAD M. ALI	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-17 and 18 are rejected under 35 U.S.C. 103(b) as being unpatentable over Takeshi et al., (EP 1049234 A2) in view of Staffia (5,732,769) and Ashenfelter (4,576,555). Takeshi et al., disclose a drive unit 10 for an electric vehicle comprising a motor M, an inverter H, a speed reducer (see column 8, lines 37-40), a first refrigerant (water) receiving heat of at least one of the motor and the inverter and outputting the heat into the atmosphere through radiator R; second refrigerant (lubricating oil) receiving heat of at least one of motor and the speed reducer and outputting heat to the first refrigerant through a heat exchanger C; the heat exchanger C transferring the heat of second refrigerant to the first refrigerant. See Fig.1, column 6, line 44 to column 9, line 2. Also see Fig. 5, 6, 11, 12 and 14; differential drive pinion gear 45, differential ring gear 52 and differential D, see Fig. 3 and Para [0041]; the inverter U as shown in Fig. 5,

Art Unit: 3744

mount on the part of the drive unit case 10 and integrated with drive unit case 10, see Para [0047] and lines 18-23. Takeshi et al., disclose the invention substantially as claimed as stated above except another cooling passage being disposed inside of the cooling passage through which the second refrigerant is passed and the heat exchanger being disposed at a bottom of the drive unit.. Staffia teaches the a cooling passage between external pipe 1 and internal pipe 2 through which (see arrow 5) a second refrigerant (lubricating oil) is passed and the another refrigerant (cooling water) is passed through the internal pipe 4 disposed inside the second refrigerant passage as shown by arrow 7 in a vehicle oil cooling system for the purpose of cooling lubricating oil and Ashenfelter teaches the use of a heat exchanging pipe 54 with cool refrigerant exchanging heat with the lube oil in the sump 70 both disposed under a drive unit 20 for the purpose of cooling lubricating oil. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the drive unit of Takeshi et al., in view of Staffia and Ashenfelter such that the passage of other refrigerant could be provided through the passage of a second refrigerant and the heat exchanger being disposed at the bottom of the drive unit in order to exchange heat with the lubricating oil to cool it at a place where it gathers in a sump of a drive unit. Regarding claims 2-7, 9-11, 14-15 and 18, the specific configuration of inverter and speed reducer; it is an obvious to have a specific configuration of the above objects since there is no criticality or unexpected result from it.

Response to Arguments

Applicant's arguments filed 03/19/08 have been fully considered but they are not persuasive. The applicant argued, "Takeshi fails to disclose either feature (1): the heat exchanger is integrally built into the structural member, which integrally holds the motor, inverter, and the differential gear train, i.e., the drive unit, and is disposed at the bottom of the drive unit, or feature (2): the heat exchanger includes a cooling passage through which the second refrigerant is passed and another cooling passage through the first refrigerant is passed, where the another cooling passage is disposed inside the cooling passage through the second refrigerant is passed. With respect to feature (1), Takeshi merely teaches that the drive apparatus is constituted by the motor. Takeshi does not suggest a drive unit comprising a motor, inverter, and differential gear train, where a heat exchanger is integrally built into a structural member, which integrally holds the drive unit. Neither Ashenfelter nor Staffa disclose this feature, and thus even if combined with Takeshi, the combination would not suggest all the features of claim 1. In particular, Ashenfelter discloses a drive unit 20 that comprise a motor, but not an inverter and differential gear train. While Staffa discloses a double pipe structure with one cooling medium passage within a cooling passage containing another cooling medium, nowhere does Staffa disclose or suggest that its double pipe structure be integrally built into a structural member as recited in claim 1, where the structural member integrally holds the motor, the inverter, and the differential gear train, or disposed at the bottom of a drive unit as that drive unit is described in claim 1 where the drive unit comprises the motor, the inverter, and the differential gear train. Thus, even if Takeshi, Ashenfelter and Staffa were combined, the combination would not have all the

features of claim 1.” The examiner disagrees. All the above mentioned features are clearly indicated in the above rejections. Regarding integrally built in structural member are also indicated and can be found in Fig. 5. Apart from that the general concept of designing a heat exchanger which is integrally built into the Structural member, which integrally holds the motor, the inverter, and the differential gear train falls within the realm of common knowledge as obvious mechanical expedient and this is illustrated by Takeshi et al., which teach to integrate an inverter U as shown in Fig. 5, mounted on the upper part of the drive unit 10 and integrated with drive unit case 10 containing differential gear 45/52. See Fig. 5, Para [0047], lines 18-23. Therefore, rejections are ok.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad M. Ali whose telephone number is 571-272-4806. The examiner can normally be reached on maxiflex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4808. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad M Ali/

Primary Examiner, Art Unit 3744